OIPE IAP12
OCT 06 2006
PATENT & TRADEMARK OFFICE

PATENT
TH 2094 (US)
RST:SWT

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Commissioner for Patents, Alexandria, VA 22313-1450 on or before the date shown below.

Rachael Stiegel
Date: 10-4-06

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	
Edward P. Cernocky and Allen J. Lindfors	
Serial No. 09/896,432	Group Art Unit: 3663
Filed June 29, 2001	Examiner: Daniel Greene
METHOD AND APPARATUS FOR DETONATING AN EXPLOSIVE CHARGE	October 4, 2006

COMMISSIONER FOR PATENTS
Alexandria, VA 22313-1450

Dear Sirs:

SUBSTITUTE APPELLANT'S BRIEF

The following Substitute Appellant's Brief is on appeal of a final rejection of claims of the above-identified U.S. patent application, the final rejection contained in an Office Action mailed on October 8, 2003, and a notice of appeal mailed by applicant on January 8, 2004. This Substitute Appellant's Brief is filed in response to a Notice of Non-compliant Appeal Brief dated 10 August 2006. The below amended brief addresses the issues raised by the Order. If a fee is required,

please charge to Shell Oil Company Deposit Account No. 19-1800. It is respectfully requested that the Board consider the following arguments and reverse the final rejection of claims 1-14 in the above-identified application.

(i) Real Party in Interest

The invention of the present application is assigned to Shell Oil Company, which is the real party of interest in the present appeal.

(ii) Related Appeals and Interferences

Appellant previously appealed the rejection of claims 1-14. Subsequently, Examiner reopened prosecution. A copy of the related materials are included in **(x) Related Proceedings Appendix**.

(iii) Status of Claims

Claims 1-14 stand as finally rejected under 35 U.S.C. §103(a).

(iv) Status of Amendments

No amendments have been made after the issuance of the Office Action on 10 August 2005.

(v) Summary of Claimed Subject Matter

The present inventions relate to a detonation device for selectively perforating a tubular **10** with a designated explosive charge **18** located downhole in a well bore. *See* Figure 1, Figure 2, and paragraph [0015]. The device comprises the tubular **10**, the designated explosive charge **18** attached to the tubular, a wireless receiver **38**, microprocessor and control means **40** connected to said wireless receiver, an explosive bridge wire **42**, high voltage supply means **44**; and energy storage and trigger means **46**. *See* Figure 5 and paragraph [0034]. A coded signal received by said wireless receiver is decoded by the micro

processor and, if the code designates that the respective explosive charge is to be detonated, sends a signal to the trigger means which will supply high voltage to explosive bridge wire which will create sufficient energy to initiate detonation of the respective explosive charge and thereby perforating the tubular. *See* paragraph [0034].

The present inventions further relate to a method for selectively perforating a tubular **10** with a designated explosive charge **18** located downhole in a well bore, comprising the steps of attaching the explosive charge **18** to the tubular **10**, providing a detonating device having a wireless receiver **38**, microprocessor and control means **40** connected to said wireless receiver, at least one explosive bridge wire **50**, high voltage supply means **44**, and energy storage and trigger means **46**; and transmitting a coded signal to said wireless receiver to be decoded by the microprocessor and, if the code designates that the respective explosive charge. *See* paragraph [0016], paragraph [0036], paragraph [0037], and Figures 1-6.

(vi) Grounds of Rejection to be Reviewed on Appeal

1. Whether claims 1-5 and 7 are unpatentable under 35 U.S.C. §103(a) over Snider in view of Guerreri.
2. Whether claim 6 is unpatentable under 35 U.S.C. §103(a) over Snider in view of Guerreri and further in view of Neyer.
3. Whether claims 8-12 and 11-14 are unpatentable under 35 U.S.C. §103(a) over Snider in view of Abouav and further in view of Guerreri.
4. Whether claim 13 is unpatentable under 35 U.S.C. §103(a) over Snider in view of Abouav, further in view of Guerreri as applied to claim 8 above, and further in view of Neyer.

(vii) Arguments

1. Rejection of claims 1-5 and 7 as unpatentable under 35 U.S.C. §103(a) is improper because there is no suggestion to combine the references and the references do not disclose all of the elements in the claims.

Examiner has failed to provide a prima facie basis for rejection because there is no suggestion to combine the references cited. Examiner asserts that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Guerreri's apparatus in order to achieve the benefits of a wireless system as well (i.e. no cost for wires, no management of wires, portability, etc.) as the desired effect of producing a blasting system, which is comprised of a plurality of detonator assemblies that are individually detonated by a wireless remote command source." Examiner further states that Guerreri and Snider are analogous art because they both deal with detonation of explosives. This is not a sufficient suggestion to combine the references.

Snider and Guerreri are in fact nonanalogous art. Analogous art is art that is either in the field of technology of the claimed invention or deals with the same problem solved by the claimed invention. *In re Wood*, 559 F.2d 1032, 202 USPQ 171 (CCPA 1979). Snider relates to "a process or apparatus for establishing communication through the wall of a wellbore tubular. (see column 1, lines 6-8). Guerreri relates to "detonation of explosive charges using electrical detonators in environments *having high levels of extraneous electricity*. (see column 1, lines 9-13). More specifically, Guerreri relates to the detonation of explosives in hostage-taking situations in urban or highly concentrated areas (see column 1, lines 15-61). A wellbore tubular does not have high levels of extraneous electricity especially in comparison to the highly populated urban area described by Guerreri. Thus, Snider and Guerreri are neither in the same field of technology nor do they solve the same problem. One skilled in the art of establishing communication through the wall of a wellbore tubular would not look to combine

elements of Snider with elements of Guerreri, a technology in the field of detonation in environments having high levels of extraneous electricity.

Even if there were a suggestion to combine the references, Examiner also fails to present a prima facie showing of obviousness because not all of the limitations of claim 1 are disclosed. Examiner asserts that Guerreri teaches "an electric blasting cap (104) with an explosive bridge wire and an energy storage and triggering means (110)." Guerreri does not disclose an explosive bridge wire. The firing mechanism in Guerreri is a capacitor discharge-blasting machine. Guerreri explains that "[s]uch devices are well known and comprise a capacitor which stores a quantity of electricity. The capacitor is discharged into the firing circuit upon activation of a firing switch causing an electric blasting cap to detonate the explosive charge." (see column 6, lines 57-63). Upon application of power, the explosive bridge wire of claim 1 will flash vaporize and detonate the explosive charge. (see page 10, lines 19-21). Nowhere does Guerreri teach using a bridge wire for detonation.

2. Rejection of claim 6 as unpatentable under 35 U.S.C. §103(a) is improper because there is no suggestion to combine the references.

For the reasons presented in section 1 of this Appeal Brief, Snider and Guerreri are not analogous art; therefore, there is no suggestion to combine Snider, Guerri, and Neyer, and a prima facie showing of obviousness is not established. This rejection is therefore improper.

3. Rejection of claims 8-12 and 11-14 as unpatentable under 35 U.S.C. §103(a) is improper because there is no suggestion to combine the references and the references do not disclose all of the elements in the claims.

For the reasons presented in section 1 of this Appeal Brief, Snider and Guerreri are not analogous art; therefore, there is no suggestion to combine Snider, Guerri, and Abouav, and a prima facie showing of obviousness is not established. This rejection is therefore improper. Even if there were a suggestion to combine the references, Examiner also fails to present a prima facie showing of obviousness because not all of the limitations of claim 8 are disclosed. Agent has amended claim to include the limitation of attaching the explosive charge to the tubular such that the explosive charge is in direct contact with the tubular. This limitation is supported by the specification and is not suggested by the cited references.

4. Rejection of claim 13 as unpatentable under 35 U.S.C. §103(a) is improper because there is no suggestion to combine the references.

For the reasons presented in section 1 of this Appeal Brief, Snider and Guerreri are not analogous art; therefore, there is no suggestion to combine Snider, Guerri, Abouav, and Neyer, and a prima facie showing of obviousness is not established. This rejection is therefore improper.

For the reasons set forth above, the applicants assert that the rejections made by the Examiner are improper. Applicants therefore request that the Board reverse the Examiner's rejections, and allowance of the claims is respectfully requested.

(viii) Claims Appendix

Claims under Appeal

US 09/896,432

1. (Previously presented) A detonation device for selectively perforating a tubular with a designated explosive charge located downhole in a well bore, said device comprising:

the tubular;

the designated explosive charge attached to the tubular;

a wireless receiver;

microprocessor and control means connected to said wireless receiver;

an explosive bridge wire;

high voltage supply means; and energy storage and trigger means, whereby a coded signal received by said wireless receiver is decoded by the micro processor and, if the code designates that the respective explosive charge is to be detonated, sends a signal to the trigger means which will supply high voltage to explosive bridge wire which will create sufficient energy to initiate detonation of the respective explosive charge and thereby perforating the tubular.

2. (Original) The detonation device according to claim 1, wherein said coded signal allows selective detonation of a plurality of explosive charges individually.

3. (Original) The detonation device according to claim 1, wherein said coded signal allows selective detonation of a plurality of explosive charges in sequence.

4. (Original) The detonation device according to claim 1, wherein said coded signal allows selective detonation of a plurality of explosive charges in any desired pattern.

5. (Previously presented) The detonation device according to claim 1 wherein the wireless signal does not transmit the power to initiate detonation of the explosive charge thereby reducing the risk of accidental detonation of the explosive charge.

6. (Previously presented) The detonation device according to claim 1 wherein said explosive bridge wire comprises:

circuit board having an aperture therein;

an electrical circuit formed on said board with a portion of the circuit overlying said aperture forming a bridge, said bridge having dimensions smaller than the rest of the electrical circuit so that, upon application of power to the circuit, the bridge will flash vaporize causing detonation of the nearby explosive charge.

7. (Original) The detonation device according to claim 1 wherein said microprocessor includes digital signal processing logic.

8. (Previously presented) A method for selectively perforating a tubular with a designated explosive charge located downhole in a well bore, comprising the steps of:

attaching the explosive charge to the tubular such that the explosive charge is in direct contact with the tubular;

providing a detonating device having a wireless receiver, microprocessor and control means connected to said wireless receiver, at least one explosive bridge wire, high voltage supply means, and energy storage and trigger means; and

transmitting a coded signal to said wireless receiver to be decoded by the microprocessor and, if the code designates that the respective explosive charge is to be detonated, sends a signal to the trigger means which supplies high

voltage to the explosive bridge wire causing it to substantially instantly vaporize creating sufficient energy to initiate detonation of the respective explosive charge and thereby perforating the tubular.

9. (Original) The method according to claim 8, wherein said coded signal allows selective detonation of a plurality of explosive charges individually.

10. (Original) The method according to claim 8, wherein said coded signal allows selective detonation of a plurality of explosive charges in sequence.

11. (Original) The method according to claim 8, wherein said coded signal allows selective detonation of a plurality of explosive charges in any desired pattern.

12. (Previously presented) The method according to claim 8 wherein the coded signal does not transmit the power to initiate detonation of the explosive charge thereby reducing the risk of accidental detonation of the explosive charge.

13. (Previously presented) The method according to claim 8 wherein said explosive bridge wire comprises:

circuit board having an aperture therein;

an electrical circuit formed on said circuit board with a portion of the electrical circuit overlying said aperture forming a bridge, said bridge having dimensions smaller than the rest of the electrical circuit so that, upon application of power to the electrical circuit, the bridge will flash vaporize causing detonation of the nearby explosive charge.

14. (Previously presented) The method according to claim 8 wherein said microprocessor includes digital signal processing logic.

(ix) Evidence Appendix

Applicant and appellant's legal representative are not aware of any evidence that directly affects or could have a bearing on the Board's decision in the present appeal.

(x) Related Proceedings Appendix

This case has a history of appeals proceedings, but has never progressed beyond the Appeal Brief stage. Copies of the following related proceedings are included:

1. Appellant's Brief filed March 24, 2004
2. Substitute Appellant's Brief filed August 13, 2004
3. Substitute Appellant's Brief filed November 19, 2004
4. Office Action reopening Examination mailed January 28, 2005
5. Appeal Brief filed October 21, 2005
6. Reply Brief filed 27 February 2006
7. Substitute Appeal Brief filed August 1, 2006*

*The Substitute Appeal Brief currently filed is in response to a Notice concerning the Brief filed August 1, 2006 and replaces all versions of the Brief.

Respectfully submitted,
Edward P. Cernocky et al.

By _____
Patent Agent, Rachael Stiegel
Registration No. 54,469
(713) 241-1842

P.O. Box 2463
Houston, Texas 77252-2463

I hereby certify that this correspondence is being deposited with the United States postal service as first-class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on December 17, 2002.

DEL S. CHRISTENSEN — March 24, 2004 (Date of Signature)

OIPE IAP12 OCT 06 2006 PATENT & TRADEMARK OFFICE

PATENT
TH 2094 (US)
DSC

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Edward Paul Cernocky and Allen J. Lindfors

Serial No. 09/896,432

Filed June 29, 2001

METHOD AND APPARATUS FOR DETONATING AN EXPLOSIVE CHARGE

GROUP ART UNIT 3641

EXAMINER: H. A. Blackner

March 24, 2004

COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

APPELLANT'S BRIEF

The following brief is on appeal of a final rejection of claims of the above-identified U.S. patent application, the final rejection contained in an Office action mailed on October 8, 2003, and a notice of appeal mailed by applicant on January 8, 2004. This brief is filed in triplicate. Please charge the fee for filing of this brief to Shell Oil Company Deposit Account No. 19-1800. It is respectfully requested that the Board consider the following arguments and reverse the final rejection of claims 1-14 in the above-identified application.

REAL PARTY IN INTEREST

The invention of the present application is assigned to Shell Oil Company, which is the real party of interest in the present appeal.

RELATED APPEALS AND INTERFERENCES

Appellant, and appellant's legal representative, are not aware of any appeals or interferences that directly affect or could directly be affected by or have a bearing on the Board's decision in the present appeal.

STATUS OF THE CLAIMS

Claims 1-14 stand as finally rejected under 35 U.S.C. §103(a).

STATUS OF AMENDMENT

There are no amendments filed herewith or outstanding with respect to this application.

SUMMARY OF THE INVENTION

The present invention relates to a detonation device for selectively perforating a tubular with a designated explosive charge using wireless communications to trigger a high voltage charge across a bridge wire to cause detonation of the respective explosive charge. The wireless communications include a receiver that detects a coded signal so that different charges may be placed on a casing before the casing is set in the wellbore, and each of the perforations may be formed at a later time of the choosing of the operator.

ISSUES

1. Whether a prima facie basis for rejection of claims1-5 and 7-14 exists in the combination of Babour et. al and Guerreri.

3. Whether a prima facie basis for rejection of claims 6 exists in the combination of Neyer and Guerreri et al.

GROUPING OF CLAIMS

Claims 1-5, and 7-14 stand together and claim 6 stands alone.

ARGUMENTS

1. Prima facie basis for rejection of claims1-5 and 7-14 lacking in the combination of Babour et. al and the other references relied upon

Claims 1-5 and 7 stand as rejected over Babour et al. (US patent no. 5,467,823) in view of Guerreri et al. (US patent 4,884,506). Claims 8-12 and 14 stand as rejected over Babour et al. with Guerreri et al. and Abouav (US patent no. 5,090,321), and claim 13 stands as rejected over these three in addition to Nwyer (US patent no. 6,234,081).

To form a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the references or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP § 2142, citing *in re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The present rejections fail to state a motivation to combine the references, in particular, Babour et al. to form a *prima facie* basis for the rejection, and additionally, even if combined, the element of perforation of the tubular is not taught or suggested in the combined references. Thus a proper *prima facie* basis for the rejection is not provided.

Babour et al. suggest a system for installing sensors in a cemented region around a wellbore, and then perforating the cement around the casing. Babour et al. uses a hard wire connection to control a detonation of shaped charges to perforate the cement without damaging the casing. The goal of Babour et al. is to provide communication to the monitor from the formation surrounding the wellbore through the cement. In FIG. 5 of Babour et al., a separate uncased wellbore is used to place the sensor in the formation, and then the cement is perforated to provide communication between the sensor and the formation. In neither embodiment is a tubular perforated by the remotely controlled shaped charge.

Guerreri et al. suggests a remote detonation system for detonation of explosive charges selectively. Guerreri et al.'s system is suggested for use in applications such as military applications where the charge is transported to a hazardous location by a remote controlled tractor, and then

detonated. It is not suggested that the remote detonation system of Guerreri et al. be used to perforate wellbores as in the present system.

The Examiner indicated, on page 3 of the Office action mailed on October 8, 2003, that it "would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Guerreri's remote detonation device in order to assemble a detonation device that can operate within an environment having high levels of extraneous electricity including stray ground currents, electromagnetic fields, and radio frequency energy." A wellbore casing is generally pretty well grounded. It is not a problem in the oilfield that extraneous electrical signals cause problems in communicating up and down a wellbore. Further, if there were extraneous electrical signals, one of ordinary skill in the art might tend to favor a hard wired system such as the wire used to communicate with the shaped charges of Babour et al. as suggested in Babour et al. This rational is closer to a teaching away than a suggestion to combine the references. The Examiner has not provided a basis for a suggestion that a person of ordinary skill in the art would combine Barour et al. and Guerreri et al. to suggest the system of the present invention.

Babour et al. is relied on by the Examiner to suggest perforation of a wellbore casing. To the contrary, Babour et al. perforates the cement around the casing with a shaped charge, and does not perforate a casing. Babour et al., in column 3, line 45-47, describes the charges as being tangential to the casing in order to miminize any damage to the casing. This element is missing from the present combination over which claims 1-5 and 7-14 are rejected.

2. Prima facie basis for rejection of claims 6 is lacking in the combination of Neyer and Guerreri et al.

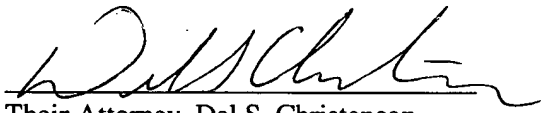
Neyer et al. suggests a slapping bridge to dentonate an explosive, but does not add to Guerreri et al. the elements of perforation of a wellbore tubular as required in claim 1 (from which claim 6 is dependent). Additionally, the reasons why Babour et al. in view of Guerreri do not form a prima facie basis for the rejection of claims 1-5 and 7-14 also apply to the present rejection of claim 6.

CONCLUSION

For the reasons set forth above, the applicants assert that the rejections made by the Examiner are improper. Applicants therefore request that the Board reverse the Examiner's rejections, and allowance of the claims is respectfully requested.

Respectfully submitted,

Edward Paul Cernocky and Allen J. Lindfors

By: 

Their Attorney, Del S. Christensen
Registration No. 33,482
(713) 241-3997

P. O. Box 2463
Houston, TX 77252-2463

Enclosure: Triplicate copies of Petition with appendix of claims

APPENDIX

Claims under Appeal

US 09/896,432

1. A detonation device for selectively perforating a tubular with a designated explosive charge located downhole in a well bore, said device comprising:

the tubular;

the designated explosive charge attached to the tubular;

a wireless receiver;

microprocessor and control means connected to said wireless receiver;

an explosive bridge wire;

high voltage supply means; and energy storage and trigger means, whereby a coded signal received by said wireless receiver is decoded by the micro processor and, if the code designates that the respective explosive charge is to be detonated, sends a signal to the trigger means which will supply high voltage to explosive bridge wire which will create sufficient energy to initiate detonation of the respective explosive charge and thereby perforating the tubular.

2. The detonation device according to claim 1, wherein said coded signal allows selective detonation of a plurality of explosive charges individually.

3. The detonation device according to claim 1, wherein said coded signal allows selective detonation of a plurality of explosive charges in sequence.

4. The detonation device according to claim 1, wherein said coded signal allows selective detonation of a plurality of explosive charges in any desired pattern.

5. The detonation device according to claim 1 wherein the wireless signal does not transmit the power to initiate detonation of the explosive charge thereby reducing the risk of accidental detonation of the explosive charge.

6. The detonation device according to claim 1 wherein said explosive bridge wire comprises:

circuit board having an aperture therein;

an electrical circuit formed on said board with a portion of the circuit overlying said aperture forming a bridge, said bridge having dimensions smaller than the rest of the electrical circuit so that, upon application of power to the circuit, the bridge will flash vaporize causing detonation of the nearby explosive charge.

7. The detonation device according to claim 1 wherein said microprocessor includes digital signal processing logic.

8. A method for selectively perforating a tubular with a designated explosive charge located downhole in a well bore, comprising the steps of:

attaching the explosive charge to the tubular;

providing a detonating device having a wireless receiver, microprocessor and control means connected to said wireless receiver, at least one explosive bridge wire, high voltage supply means, and energy storage and trigger means; and

transmitting a coded signal to said wireless receiver to be decoded by the microprocessor and, if the code designates that the respective explosive charge is to be detonated, sends a signal to the trigger means which supplies high voltage to the explosive bridge wire causing it to

substantially instantly vaporize creating sufficient energy to initiate detonation of the respective explosive charge and thereby perforating the tubular.

9. The method according to claim 8, wherein said coded signal allows selective detonation of a plurality of explosive charges individually.

10. The method according to claim 8, wherein said coded signal allows selective detonation of a plurality of explosive charges in sequence.

11. The method according to claim 8, wherein said coded signal allows selective detonation of a plurality of explosive charges in any desired pattern.

12. The method according to claim 8 wherein the coded signal does not transmit the power to initiate detonation of the explosive charge thereby reducing the risk of accidental detonation of the explosive charge.

13. The method according to claim 8 wherein said explosive bridge wire comprises:

circuit board having an aperture therein;

an electrical circuit formed on said circuit board with a portion of the electrical circuit overlying said aperture forming a bridge, said bridge having dimensions smaller than the rest of the electrical circuit so that, upon application of power to the electrical circuit, the bridge will flash vaporize causing detonation of the nearby explosive charge.

14. The method according to claim 8 wherein said microprocessor includes digital signal processing logic.

OIPE IAP12
OCT 06 2006
PATENT & TRADEMARK OFFICE

8/12/04

SERIAL NO: 09/896,432 CASE NO.: TH-2094(US)

FILING DATE: June 29, 2001 DUE DATE:

The stamp of the U.S. Patent Office hereupon, may be taken as acknowledging receipt in the above-identified application of the following:

Substitute Appellants Brief
w/C.O.M.

By DSC/SWT

8/12/04

SERIAL NO: 09/896,432 CASE NO.: TH-2094(US)

FILING DATE: June 29, 2001 DUE DATE:

OIPE JC11
AUG 16 2004
PATENT & TRADEMARK OFFICE

The stamp of the U.S. Patent Office hereupon, may be taken as acknowledging receipt in the above-identified application of the following:

Substitute Appellants Brief
w/C.O.M.

By DSC/SWT

OIPE IAP12
OCT 06 2006
PATENT & TRADEMARK OFFICE

11/19/04

SERIAL NO: 09/896,432 CASE NO.: TH-2094(US)

FILING DATE: 6/29/01 DUE DATE:

The stamp of the U.S. Patent Office hereupon, may be taken as acknowledging receipt in the above-identified application of the following:

Substitute Appellant's Brief

W/C.O.M.

By RST/SCW

11/19/04

SERIAL NO: 09/896,432 CASE NO.: TH-2094(US)

FILING DATE: 6/29/01 DUE DATE:

OIPE JC13
NOV 22 2004
PATENT & TRADEMARK OFFICE

The stamp of the U.S. Patent Office hereupon, may be taken as acknowledging receipt in the above-identified application of the following:

Substitute Appellant's Brief

W/C.O.M.

By RST/SCW

OIPE
OCT 06 2006
PATENT & TRADEMARK OFFICE

UNITED STATES PATENT AND TRADEMARK OFFICE

T-H2094

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/896,432	06/29/2001	Edward Paul Cernocky	SOC-105	8240

7590 01/28/2005

Russell J. Egan
908 Town & Country Blvd., Suite 120
Houston, TX 77024-2221

EXAMINER	
GREENE, DANIEL LAWSON	
ART UNIT	PAPER NUMBER
3641	

DATE MAILED: 01/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

RECEIVED
JAN 31 2005
BY:

SHELL OIL CO.
Intellectual Property
RECEIVED
FEB 10 05

RST
Files MAS
TO HANDLE ASSIGNED BY
ANS'D BY
NO REPLY NEEDED
COPIED TO DATE

Office Action Summary	Application No.	Applicant(s)	
	09/896,432	CERNOCKY ET AL.	
	Examiner	Art Unit	
	Daniel L Greene Jr.	3641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 November 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Reopened Examination

1. Applicant's request for reconsideration of the finality of the rejection of the Office action dated 10/08/2003 is persuasive and, therefore, the finality of that action is withdrawn.

2. Upon further consideration of applicants arguments within the Substitute Appellant's Brief filed 11/22/2004 the following rejections have been withdrawn:

35 U.S.C. 103(a) over Babour in view of Guerreri,

35 U.S.C. 103(a) over Guerreri in view of Neyer,

35 U.S.C. 103(a) over Babour in view of Abouav, and further in view of Guerreri,

35 U.S.C. 103(a) over Babour in view of Abouav, and further in view of Guerreri in further in view of Neyer.

However, upon further review, new grounds of rejection have been found and an office action on the merits of the instant application follows.

3. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-5, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over the previously cited references Snider in view of Guerreri.

4. In regards to claim 1 Snider discloses a detonation device (10) for selectively perforating a tubular (12) with a designated explosive charge (22) located down hole in a well bore (2), said device comprising;

the tubular (12);

the designated explosive charge (22) attached (page 9 lines 6-12) to the tubular (12); and a receiver (page 11, lines 14-15); whereby a transmitted signal detonates the respective explosive charge and thereby perforating the tubular .

In Figures 1 and 3 and page 8 lines 20-28, page 9 lines 6-12, 23-28, page 11 lines 14-15, and 19-21 and claims 39, 40, 42, 43 and 51

However, Snider does not expressly illustrate a wireless receiver, microprocessor and control means connected to said wireless receiver, an explosive bridge wire, high voltage supply means, and energy storage and trigger means, whereby a coded signal received by said wireless receiver is decoded by the micro processor and, if the code designates that the respective explosive charge is to be detonated, sends a signal to the trigger means which will supply high voltage to explosive bridge wire which will create sufficient energy to initiate detonation of the respective explosive charge.

Guerreri teaches a detonation device (10) for detonating an explosive charge comprising of a command unit (11), a translator unit (12), a control unit (13), which is comprised of a wireless receiver (61), a microprocessor and control means (62), a firing mechanism (63), which is comprised of an electric blasting cap (104) with an explosive bridge wire and an energy storage and triggering means (110), in figures 1-3 and 5 and

column 3 lines 1-8, lines 11-26, and lines 30-51, column 4 lines 3-10 and lines 15-29, column 6 lines 57-68, and column 7 lines 1-14 and line 26.

Guerreri and Snider are analogous art because they both deal with detonation of remote explosive charges.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Guerreri's apparatus in order to achieve the benefits of a wireless system (i.e. no cost for wires, no management of wires, portability, etc.) as well as the desired effect of producing a blasting system, which is comprised of a plurality of detonator assemblies that are individually detonated by a wireless remote command source. It is noted that Snider discloses any suitable control system may be used to ignite the explosive charges including electromagnetic wave transmissions (i.e. wireless).

5. In regards to claims 2-4, Guerreri clearly illustrates a coded wireless signal that allows selective detonation of a plurality of explosive charges individually, in sequence, and in any desired pattern in figures 2, 3, 4, and 4a and column 3 lines 45-51, column 4 lines 30-66, column 5 lines 1-41 and lines 50-64, column 6 lines 5-9, lines 12-24, and lines 40-56.

6. In regards to claim 5, Guerreri clearly illustrates that the coded wireless signal does not transmit the power that is required to detonate the explosive charges, as identified in the rejections of corresponding parts of claims 2-4 above.

7. In regards to claim 7, Guerreri clearly illustrates that said microprocessor includes a digital signal processing logic, as identified in the rejections of corresponding parts of claims 2-4 above.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Snider in view of Guerreri and further in view of Neyer.

Snider as modified above by Guerreri discloses the claimed invention in figure 5 and column 6 lines 64-68 and column 7 lines 1-14, that the means for explosive charge (14) is comprised of a shape charge with a solid explosive (101), which is initiated by an electric blasting cap (104). The electric blasting cap, which comprises an explosive bridge wire, is initiated with the application of an electric current, which is applied via a capacitor discharge-blasting machine (110) and initiating switch (105), to the explosive bridge wire. Guerreri does not illustrate that the explosive bridge wire is composed of an electrical circuit that is formed on a circuit board with an aperture and a portion of the electrical circuit overlying the aperture.

Neyer teaches in figures 2 and 3 and column 2 lines 38-46 and lines 65-69 and column 3 lines 1-3, lines 11-18, and lines 23-37, that a chip slapper (40) that is composed of a ceramic substrate (20) and contains a coating of a metal film, which is etched into the shape of spaced conductive lands (14) and (16) and bridge member (42), and is deposited with a flyer layer (20) of dielectric coating. The bridge member is a curved shape, typically a circle, and includes a cavity (44). When a current is applied to the chip slapper, via the conductive lands, the bridge member is vaporized and produces a circular shaped flying plate (48). The circular shaped flying plate is

produced by the cavity, which results in a shock wave focused to a higher pressure, due to the flying plate's ability of sticking to the substrate. The flying plate's ability to sticking to the substrate is due to the decrease in plasma driving the inner surface of the bridge member.

Snider and Neyer are analogous art because they both deal with the detonation of explosives.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Neyer's improved shaped bridge slapper in order to achieve a larger shock wave to detonate an explosive, by using less energy than is required for a conventional bridge slapper, as such is no more in than the use of common explosive bridge wire configurations known in the art.

9. **NOTE: Applicant has argued that the invention of claim 6 detonates a charge by vaporization of the bridge, not the slapper mechanism of Neyer. This argument is not persuasive and the office would like to point out that Neyer clearly discloses the limitations presented by applicant. It is the vaporization of the bridge in Neyer that causes the detonation of the charge, regardless of the interim slapper mechanism.**

10. Note also that statements as to possible future acts or to what the flash vaporization of the bridge causes is essentially a method limitation or statement of intended or desired use and do not serve to patentable distinguish the claimed structure over that of the reference. See *In re Pearson*, 181 USPQ; *In re Yanush*, 177 USPQ

705; *In re Finsterwalder*, 168 USPQ 530; In re Casey, 152 USPQ 235; *In re Otto*, 136 USPQ 458; *Ex parte Masham*, 2 USPQ 2nd 1647.

See MPEP 2114, which states:

> A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647
>
> Claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than functions. *In re Danly*, 120 USPQ 528, 531
>
> Apparatus claims cover what a device is, not what a device does. *Hewlett-Packard Co. v Bausch & Lomb Inc.*, 15 USPQ2d 1525, 1528

As set forth in MPEP 2115, a recitation in a claim to the material or article worked upon does not serve to limit an apparatus claim.

Claims 8-12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snider in view of Abouav, and further in view of Guerreri.

11. In regards to claim 8, Snider discloses a method for selectively perforating a tubular with a designated explosive charge located down hole in a well bore in claims 1 and 40:

> 1. *A process for establishing fluid communication comprising:*
> *positioning (including connecting/attaching(see claim 40)) at least one explosive charge in a subterranean well bore such that said at least one explosive charge is placed external to casing which is also positioned within said well bore and is aimed toward said casing; and*
> *detonating said at least one explosive charge so as to perforate the wall of said casing at least once.*

Although Snider discloses "Other suitable control system for igniting the explosive charge(s)...such as electromagnetic...and corresponding receivers (not

illustrated)...for wave transmissions" (See page 9), Snider does not expressly illustrate a detonating explosive charge having a wireless receiver, a microprocessor and control means connected to the wireless receiver, at least one explosive bridge wire, a high voltage supply means, an energy storage, a trigger means, and a method of transmitting a coded signal to an individual detonator assembly, in order to activate an individual detonator assembly among a plurality of detonator assemblies.

Abouav teaches in figure 1 and column 5 lines 45-56 and lines 62-68, that a quarry face (2) contains a number of well bores (4), which contain detonator assemblies (6) located in each well bore. The detonator assemblies are connected by conductors (10) to an antenna (11) for a radio transceiver (12) located in one or more of the assemblies. The radio transceiver receives control signals from a controller (14) via a transceiver (15) so that the detonator assemblies can be actuated by a wireless remote control. The detonator assemblies are synchronized to be activated at an establish time, after the controller has transmitted the signals for the blast to commence.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Abouav's method of activating the detonator assemblies in order to achieve the desired effect of activating the detonator assemblies in a precisely defined time sequence so that efficient use is made of the blasting materials, as such is no more in the use of common techniques and methods known in the art.

Guerreri teaches, in the corresponding rejection of claim 1 above, a method of activating an individual detonator assembly among a plurality of detonator assemblies.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Guerreri's apparatus in order to achieve the benefits of a wireless system (i.e. no cost for wires, no management of wires, portability, etc.) as well as to achieve the desired effect of producing a blasting system, which is comprised of a plurality of detonator assemblies that are individually detonated by a wireless remote command source. It is noted again, that Snider clearly discloses any suitable control system may be used to ignite the explosive charges including electromagnetic wave transmissions (i.e. wireless).

12. In regards to claims 9-11, see rejections of corresponding parts of claims 2-4 above.

13. In regards to claim 12, see rejections of corresponding parts of claim 5 above.

14. In regards to claim 14, see rejections of corresponding parts of claim 7 above.

15. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Snider in view of Abouav, further in view of Guerreri as applied to claim 8 above, and further in view of Neyer.

Snider in view of Abouav, and further in view of Guerreri discloses the claimed method above, but does not illustrate an electrical circuit, which is formed on a circuit board that contains an aperture, overlying the aperture in order to form an explosive bridge wire, that when energized by an application of power, will flash vaporize causing detonation of a nearby explosive charge.

Neyer teaches, in the corresponding rejection of claim 6 above, an electrical circuit that overlies an aperture of a circuit board in order to form an explosive bridge wire.

Snider and Neyer are analogous art because they both deal with detonating explosives.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Neyer's improved shaped bridge slapper in order to achieve a larger shock wave to detonate an explosive, by using less energy than is required for a conventional bridge slapper as such is no more in than the use of common explosive bridge wire configurations known in the art.

16. NOTE: It is the vaporization of the bridge in Neyer that causes the detonation of the charge, regardless of the interim slapper mechanism.

17. Note also that statements as to possible future acts or to what the flash vaporization of the bridge causes is essentially a method limitation or statement of intended or desired use and do not serve to patentable distinguish the claimed structure over that of the reference. See *In re Pearson*, 181 USPQ; *In re Yanush*, 177 USPQ 705; *In re Finsterwalder*, 168 USPQ 530; In re Casey, 152 USPQ 235; *In re Otto*, 136 USPQ 458; *Ex parte Masham*, 2 USPQ 2nd 1647.

See MPEP 2114, which states:

> A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647

Claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than functions. *In re Danly,* 120 USPQ 528, 531

Apparatus claims cover what a device is, not what a device does. *Hewlett-Packard Co. v Bausch & Lomb Inc.,* 15 USPQ2d 1525, 1528

As set forth in MPEP 2115, a recitation in a claim to the material or article worked upon does not serve to limit an apparatus claim.

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel L Greene Jr. whose telephone number is (703) 605-1210. The examiner can normally be reached on Mon-Fri 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael J Carone can be reached on (703) 306-4198. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

19. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DIG
January 26, 2005

MICHAEL J. CARONE
SUPERVISORY PATENT EXAMINER

OIPE IAP12
OCT 06 2006
PATENT & TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	)	
	)	
Edward P. Cernocky and	)	
Allen J. Lindfors	)	
	)	
Serial No. 09/896,432	)	Group Art Unit: 3641
	)	
Filed June 29, 2001	)	Examiner: H. A. Blackner
	)	
METHOD AND APPARATUS FOR	)	
DETONATING	)	August 1, 2006
AN EXPLOSIVE CHARGE	)	
	)	

COMMISSIONER FOR PATENTS
Alexandria, VA 22313-1450

SUBSTITUTE APPELLANT'S BRIEF

The following Substitute Appellant's Brief is on appeal of a final rejection of claims of the above-identified U.S. patent application, the final rejection contained in an Office action mailed on October 8, 2003, and a notice of appeal mailed by applicant on January 8, 2004. This Substitute Appellant's Brief is filed in response to an Order to hold the Appeal Brief filed 24 October 2005 as defective. The below amended brief addresses the issues raised by the Order. No charge or fee should be required as a result of filing this Substitute Appellant's Brief, but if a fee is required, please charge to Shell Oil Company Deposit Account No. 19-1800. It is

respectfully requested that the Board consider the following arguments and reverse the final rejection of claims 1-14 in the above-identified application.

(i) Real Party in Interest

The invention of the present application is assigned to Shell Oil Company, which is the real party of interest in the present appeal.

(ii) Related Appeals and Interferences

Appellant previously appealed the rejection of claims 1-14. Subsequently, Examiner reopened prosecution. A copy of the Appeal Brief is included in **(x) Related Proceedings Appendix.**

(iii) Status of Claims

Claims 1-14 stand as finally rejected under 35 U.S.C. §103.

(iv) Status of Amendments

No amendments have been made after the issuance of the Office Action on 10 August 2005.

(v) Summary of Claimed Subject Matter

The present inventions relate to a detonation device for selectively perforating a tubular with a designated explosive charge located downhole in a well bore, said device comprising the tubular, the designated explosive charge attached to the tubular, a wireless receiver, microprocessor and control means connected to said wireless receiver, an explosive bridge wire, high voltage supply means; and energy storage and trigger means, whereby a coded signal received by said wireless receiver is decoded by the micro processor and, if the code designates that the respective explosive charge is to be detonated, sends a signal to the trigger means which will supply high voltage to explosive bridge wire

which will create sufficient energy to initiate detonation of the respective explosive charge and thereby perforating the tubular.

The detonation device allows selective detonation of a plurality of explosive charges individually, in a sequence, or in any desired pattern. The wireless signal does not transmit the power to initiate detonation of the explosive charge thereby reducing the risk of accidental detonation of the explosive charge.

The explosive bridge wire comprises a circuit board having an aperture therein, an electrical circuit formed on said board with a portion of the circuit overlying said aperture forming a bridge, said bridge having dimensions smaller than the rest of the electrical circuit so that, upon application of power to the circuit, the bridge will flash vaporize causing detonation of the nearby explosive charge. The microprocessor includes digital signal processing logic.

The present inventions further relate to a method for selectively perforating a tubular with a designated explosive charge located downhole in a well bore, comprising the steps of attaching the explosive charge to the tubular, providing a detonating device having a wireless receiver, microprocessor and control means connected to said wireless receiver, at least one explosive bridge wire, high voltage supply means, and energy storage and trigger means; and transmitting a coded signal to said wireless receiver to be decoded by the microprocessor and, if the code designates that the respective explosive charge is to be detonated, sends a signal to the trigger means which supplies high voltage to the explosive bridge wire causing it to substantially instantly vaporize creating sufficient energy to initiate detonation of the respective explosive charge and thereby perforating the tubular. The coded signal allows selective detonation of a plurality of explosive charges individually, in a sequence, or in any desired pattern. The coded signal does not transmit the power to initiate detonation of the explosive charge thereby reducing the risk of accidental detonation of the explosive charge.

(vi) Grounds of Rejection to be Reviewed on Appeal

1. Whether claims 1-5 and 7 are unpatentable over Snider in view of Guerreri.
2. Whether claim 6 is unpatentable over Snider in view of Guerreri and further in view of Neyer.
3. Whether claims 8-12 and 11-14 are unpatentable over Snider in view of Abouav and further in view of Guerreri.
4. Whether claim 13 is unpatentable over Snider in view of Abouav, further in view of Guerreri as applied to claim 8 above, and further in view of Neyer.

(vii) Arguments

1. Rejection of claims 1-5 and 7 as unpatentable under 35 U.S.C. §103 is improper because there is no suggestion to combine the references and the references do not disclose all of the elements in the claims.

Examiner has failed to provide a prima facie basis for rejection because there is no suggestion to combine the references cited. Examiner asserts that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Guerreri's apparatus in order to achieve the benefits of a wireless system as well (i.e. no cost for wires, no management of wires, portability, etc.) as the desired effect of producing a blasting system, which is comprised of a plurality of detonator assemblies that are individually detonated by a wireless remote command source." Examiner further states that Guerreri and Snider are analogous art because they both deal with detonation of explosives. This is not a sufficient suggestion to combine the references.

Snider and Guerreri are in fact nonanalogous art. Analogous art is art that is either in the field of technology of the claimed invention or deals with the same problem solved by the claimed invention. *In re Wood*, 559 F.2d 1032, 202 USPQ 171 (CCPA 1979). Snider relates to "a process or apparatus for establishing

communication through the wall of a wellbore tubular. (see column 1, lines 6-8). Guerreri relates to "detonation of explosive charges using electrical detonators in environments *having high levels of extraneous electricity*. (see column 1, lines 9-13). More specifically, Guerreri relates to the detonation of explosives in hostage-taking situations in urban or highly concentrated areas (see column 1, lines 15-61). A wellbore tubular does not have high levels of extraneous electricity especially in comparison to the highly populated urban area described by Guerreri. Thus, Snider and Guerreri are neither in the same field of technology nor do they solve the same problem. One skilled in the art of establishing communication through the wall of a wellbore tubular would not look to combine elements of Snider with elements of Guerreri, a technology in the field of detonation in environments having high levels of extraneous electricity.

Even if there were a suggestion to combine the references, Examiner also fails to present a prima facie showing of obviousness because not all of the limitations of claim 1 are disclosed. Examiner asserts that Guerreri teaches "an electric blasting cap (104) with an explosive bridge wire and an energy storage and triggering means (110)." Guerreri does not disclose an explosive bridge wire. The firing mechanism in Guerreri is a capacitor discharge-blasting machine. Guerreri explains that "[s]uch devices are well known and comprise a capacitor which stores a quantity of electricity. The capacitor is discharged into the firing circuit upon activation of a firing switch causing an electric blasting cap to detonate the explosive charge." (see column 6, lines 57-63). Upon application of power, the explosive bridge wire of claim 1 will flash vaporize and detonate the explosive charge. (see page 10, lines 19-21). Nowhere does Guerreri teach using a bridge wire for detonation.

2. Rejection of claim 6 as unpatentable under 35 U.S.C. §103 is improper because there is no suggestion to combine the references.

For the reasons presented in section 1 of this Appeal Brief, Snider and Guerreri are not analogous art; therefore, there is no suggestion to combine Snider, Guerri, and Neyer, and a prima facie showing of obviousness is not established. This rejection is therefore improper.

3. Rejection of claims 8-12 and 11-14 as unpatentable under 35 U.S.C. §103 is improper because there is no suggestion to combine the references and the references do not disclose all of the elements in the claims.

For the reasons presented in section 1 of this Appeal Brief, Snider and Guerreri are not analogous art; therefore, there is no suggestion to combine Snider, Guerri, and Abouav, and a prima facie showing of obviousness is not established. This rejection is therefore improper. Even if there were a suggestion to combine the references, Examiner also fails to present a prima facie showing of obviousness because not all of the limitations of claim 8 are disclosed. Agent has amended claim to include the limitation of attaching the explosive charge to the tubular such that the explosive charge is in direct contact with the tubular. This limitation is supported by the specification and is not suggested by the cited references.

4. Rejection of claim 13 as unpatentable under 35 U.S.C. §103 is improper because there is no suggestion to combine the references.

For the reasons presented in section 1 of this Appeal Brief, Snider and Guerreri are not analogous art; therefore, there is no suggestion to combine Snider, Guerri, Abouav, and Neyer, and a prima facie showing of obviousness is not established. This rejection is therefore improper.

For the reasons set forth above, the applicants assert that the rejections made by the Examiner are improper. Applicants therefore request that the Board

reverse the Examiner's rejections, and allowance of the claims is respectfully requested.

Respectfully submitted,

Edward P. Cernocky and
Allen J. Lindfors

By /Rachael Stiegel/
Agent, Rachael Stiegel
Registration No. 54,469
(713) 241-1842

P. O. Box 2463
Houston, Texas 77252-2463

(viii) Claims Appendix

Claims under Appeal
US 09/896,432

1. (Previously presented) A detonation device for selectively perforating a tubular with a designated explosive charge located downhole in a well bore, said device comprising:

the tubular;

the designated explosive charge attached to the tubular;

a wireless receiver;

microprocessor and control means connected to said wireless receiver;

an explosive bridge wire;

high voltage supply means; and energy storage and trigger means, whereby a coded signal received by said wireless receiver is decoded by the micro processor and, if the code designates that the respective explosive charge is to be detonated, sends a signal to the trigger means which will supply high voltage to explosive bridge wire which will create sufficient energy to initiate detonation of the respective explosive charge and thereby perforating the tubular.

2. (Original) The detonation device according to claim 1, wherein said coded signal allows selective detonation of a plurality of explosive charges individually.

3. (Original) The detonation device according to claim 1, wherein said coded signal allows selective detonation of a plurality of explosive charges in sequence.

4. (Original) The detonation device according to claim 1, wherein said coded signal allows selective detonation of a plurality of explosive charges in any desired pattern.

5. (Previously presented) The detonation device according to claim 1 wherein the wireless signal does not transmit the power to initiate detonation of the explosive charge thereby reducing the risk of accidental detonation of the explosive charge.

6. (Previously presented) The detonation device according to claim 1 wherein said explosive bridge wire comprises:

circuit board having an aperture therein;

an electrical circuit formed on said board with a portion of the circuit overlying said aperture forming a bridge, said bridge having dimensions smaller than the rest of the electrical circuit so that, upon application of power to the circuit, the bridge will flash vaporize causing detonation of the nearby explosive charge.

7. (Original) The detonation device according to claim 1 wherein said microprocessor includes digital signal processing logic.

8. (Previously presented) A method for selectively perforating a tubular with a designated explosive charge located downhole in a well bore, comprising the steps of:

attaching the explosive charge to the tubular such that the explosive charge is in direct contact with the tubular;

providing a detonating device having a wireless receiver, microprocessor and control means connected to said wireless receiver, at least one explosive bridge wire, high voltage supply means, and energy storage and trigger means; and

transmitting a coded signal to said wireless receiver to be decoded by the microprocessor and, if the code designates that the respective explosive charge is to be detonated, sends a signal to the trigger means which supplies high

voltage to the explosive bridge wire causing it to substantially instantly vaporize creating sufficient energy to initiate detonation of the respective explosive charge and thereby perforating the tubular.

9. (Original) The method according to claim 8, wherein said coded signal allows selective detonation of a plurality of explosive charges individually.

10. (Original) The method according to claim 8, wherein said coded signal allows selective detonation of a plurality of explosive charges in sequence.

11. (Original) The method according to claim 8, wherein said coded signal allows selective detonation of a plurality of explosive charges in any desired pattern.

12. (Previously presented) The method according to claim 8 wherein the coded signal does not transmit the power to initiate detonation of the explosive charge thereby reducing the risk of accidental detonation of the explosive charge.

13. (Previously presented) The method according to claim 8 wherein said explosive bridge wire comprises:

circuit board having an aperture therein;

an electrical circuit formed on said circuit board with a portion of the electrical circuit overlying said aperture forming a bridge, said bridge having dimensions smaller than the rest of the electrical circuit so that, upon application of power to the electrical circuit, the bridge will flash vaporize causing detonation of the nearby explosive charge.

14. (Previously presented) The method according to claim 8 wherein said microprocessor includes digital signal processing logic.

(ix) Evidence Appendix

Applicant and appellant's legal representative are not aware of any evidence that directly affects or could have a bearing on the Board's decision in the present appeal.

(x) Related Proceedings Appendix

Appellant previously appealed the rejection of claims 1-14. Subsequently, Examiner reopened prosecution. A copy of the Appeal Brief is provided beginning on the following page.

OIPE IAP12
OCT 06 2006
PATENT & TRADEMARK OFFICE

PATENT
TH-2094 (US)
RST:SWT

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Commissioner for Patents, Alexandria, VA 22313-1450 on or before the date shown below.

Rachael Stiegel
Date: 10-21-06

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.	:	09/896,432
Applicant	:	Edward P. Cernocky and Allen J. Lindfors
Filed	:	June 29, 2001
TC/A.U.	:	3663
Examiner	:	Daniel L. Greene
Docket No.	:	TH-2094

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir

APPELLANT'S BRIEF

The following brief is on appeal of a final rejection of claims of the above-identified U.S. patent application, the final rejection contained in an Office Action mailed on 10 August 2005, and a Notice of Appeal mailed by Applicant on 11 October 2005. This brief is filed in triplicate. Please charge to Shell Oil Company

Deposit Account No. 19-1800. It is respectfully requested that the Board consider the following arguments and reverse the final rejection of claims 1-14 in the above-identified application.

(i) Real Party in Interest

The invention of the present application is assigned to Shell Oil Company, which is the real party of interest in the present appeal.

(ii) Related Appeals and Interferences

Appellant previously appealed the rejection of claims 1-14. Subsequently, Examiner reopened prosecution. A copy of the Appeal Brief is included in **(x) Related Proceedings Appendix.**

(iii) Status of Claims

Claims 1-14 stand as finally rejected under 35 U.S.C. §103.

(iv) Status of Amendments

No amendments have been made after the issuance of the Office Action on 10 August 2005.

(v) Summary of Claimed Subject Matter

The present invention relates to a detonation device for selectively perforating a tubular with a designated explosive charge located downhole in a well bore as shown in **FIG 1** and **FIG 5** in the application. The device includes: the tubular **10**; the designated explosive charge attached to the tubular **18**; a wireless receiver **38**; microprocessor and control means **40** connected to said wireless receiver **38**; an explosive bridge wire **42**; high voltage supply means **44**; and energy storage and trigger means **46**, whereby a coded signal received by said wireless receiver **38** is decoded by the micro processor **40** and, if the code

designates that the respective explosive charge **18** is to be detonated, sends a signal to the trigger means which will supply high voltage to explosive bridge wire **42** which will create sufficient energy to initiate detonation of the respective explosive charge **18** and thereby perforating the tubular **10**. In an embodiment of the invention (see **FIG 1**, **FIG 5**, and **FIG 6**), the explosive bridge wire **42** includes: a circuit board **48** having an aperture therein; and an electrical circuit **52** formed on the board **48** with a portion of the circuit overlying the aperture forming a bridge **50**, the bridge **50** having dimensions smaller than the rest of the electrical circuit so that, upon application of power to the circuit, the bridge **50** will flash vaporize causing detonation of the nearby explosive charge **18**.

(vi) Grounds of Rejection to be Reviewed on Appeal

1. Whether claims 1-5 and 7 are unpatentable over Snider in view of Guerreri.
2. Whether claim 6 is unpatentable over Snider in view of Guerreri and further in view of Neyer.
3. Whether claims 8-12 and 11-14 are unpatentable over Snider in view of Abouav and further in view of Guerreri.
4. Whether claim 13 is unpatentable over Snider in view of Abouav, further in view of Guerreri as applied to claim 8 above, and further in view of Neyer.

(vii) Arguments

1. Rejection of claims 1-5 and 7 as unpatentable under 35 U.S.C. §103 is improper because there is no suggestion to combine the references and the references do not disclose all of the elements in the claims.

Examiner has failed to provide a prima facie basis for rejection because there is no suggestion to combine the references cited. Examiner asserts that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Guerreri's apparatus in order to achieve the

benefits of a wireless system as well (i.e. no cost for wires, no management of wires, portability, etc.) as the desired effect of producing a blasting system, which is comprised of a plurality of detonator assemblies that are individually detonated by a wireless remote command source." Examiner further states that Guerreri and Snider are analogous art because they both deal with detonation of explosives. This is not a sufficient suggestion to combine the references.

Snider and Guerreri are in fact nonanalogous art. Analogous art is art that is either in the field of technology of the claimed invention or deals with the same problem solved by the claimed invention. *In re Wood*, 559 F.2d 1032, 202 USPQ 171 (CCPA 1979). Snider relates to "a process or apparatus for establishing communication through the wall of a wellbore tubular. (see column 1, lines 6-8). Guerreri relates to "detonation of explosive charges using electrical detonators in environments *having high levels of extraneous electricity*. (see column 1, lines 9-13). More specifically, Guerreri relates to the detonation of explosives in hostage-taking situations in urban or highly concentrated areas (see column 1, lines 15-61). A wellbore tubular does not have high levels of extraneous electricity especially in comparison to the highly populated urban area described by Guerreri. Thus, Snider and Guerreri are neither in the same field of technology nor do they solve the same problem. One skilled in the art of establishing communication through the wall of a wellbore tubular would not look to combine elements of Snider with elements of Guerreri, a technology in the field of detonation in environments having high levels of extraneous electricity.

Even if there were a suggestion to combine the references, Examiner also fails to present a prima facie showing of obviousness because not all of the limitations of claim 1 are disclosed. Examiner asserts that Guerreri teaches "an electric blasting cap (104) with an explosive bridge wire and an energy storage and triggering means (110)." Guerreri does not disclose an explosive bridge wire. The firing mechanism in Guerreri is a capacitor discharge-blasting machine. Guerreri explains that "[s]uch devices are well known and comprise a capacitor

which stores a quantity of electricity. The capacitor is discharged into the firing circuit upon activation of a firing switch causing an electric blasting cap to detonate the explosive charge." (see column 6, lines 57-63). Upon application of power, the explosive bridge wire of claim 1 will flash vaporize and detonate the explosive charge. (see page 10, lines 19-21). Nowhere does Guerreri teach using a bridge wire for detonation.

2. Rejection of claim 6 as unpatentable under 35 U.S.C. §103 is improper because there is no suggestion to combine the references.

For the reasons presented in section 1 of this Appeal Brief, Snider and Guerreri are not analogous art; therefore, there is no suggestion to combine Snider, Guerri, and Neyer, and a prima facie showing of obviousness is not established. This rejection is therefore improper.

3. Rejection of claims 8-12 and 11-14 as unpatentable under 35 U.S.C. §103 is improper because there is no suggestion to combine the references and the references do not disclose all of the elements in the claims.

For the reasons presented in section 1 of this Appeal Brief, Snider and Guerreri are not analogous art; therefore, there is no suggestion to combine Snider, Guerri, and Abouav, and a prima facie showing of obviousness is not established. This rejection is therefore improper. Even if there were a suggestion to combine the references, Examiner also fails to present a prima facie showing of obviousness because not all of the limitations of claim 8 are disclosed. Agent has amended claim to include the limitation of attaching the explosive charge to the tubular such that the explosive charge is in direct contact with the tubular. This limitation is supported by the specification and is not suggested by the cited references.

4. Rejection of claim 13 as unpatentable under 35 U.S.C. §103 is improper because there is no suggestion to combine the references.

For the reasons presented in section 1 of this Appeal Brief, Snider and Guerreri are not analogous art; therefore, there is no suggestion to combine Snider, Guerri, Abouav, and Neyer, and a prima facie showing of obviousness is not established. This rejection is therefore improper.

For the reasons set forth above, the applicants assert that the rejections made by the Examiner are improper. Applicants therefore request that the Board reverse the Examiner's rejections, and allowance of the claims is respectfully requested.

Respectfully submitted,

Edward P. Cernocky and
Allen J. Lindors

By _____
Patent Agent, Rachael A. Stiegel
Registration No. 54.469
(713) 241-1842

P.O. Box 2463
Houston, Texas 77252-2463

(viii) Claims Appendix

Claims under Appeal
US 09/896,432

1. (Previously presented) A detonation device for selectively perforating a tubular with a designated explosive charge located downhole in a well bore, said device comprising:

the tubular;

the designated explosive charge attached to the tubular;

a wireless receiver;

microprocessor and control means connected to said wireless receiver;

an explosive bridge wire;

high voltage supply means; and energy storage and trigger means, whereby a coded signal received by said wireless receiver is decoded by the micro processor and, if the code designates that the respective explosive charge is to be detonated, sends a signal to the trigger means which will supply high voltage to explosive bridge wire which will create sufficient energy to initiate detonation of the respective explosive charge and thereby perforating the tubular.

2. (Original) The detonation device according to claim 1, wherein said coded signal allows selective detonation of a plurality of explosive charges individually.

3. (Original) The detonation device according to claim 1, wherein said coded signal allows selective detonation of a plurality of explosive charges in sequence.

4. (Original) The detonation device according to claim 1, wherein said coded signal allows selective detonation of a plurality of explosive charges in any desired pattern.

5. (Previously presented) The detonation device according to claim 1 wherein the wireless signal does not transmit the power to initiate detonation of the explosive charge thereby reducing the risk of accidental detonation of the explosive charge.

6. (Previously presented) The detonation device according to claim 1 wherein said explosive bridge wire comprises:

circuit board having an aperture therein;

an electrical circuit formed on said board with a portion of the circuit overlying said aperture forming a bridge, said bridge having dimensions smaller than the rest of the electrical circuit so that, upon application of power to the circuit, the bridge will flash vaporize causing detonation of the nearby explosive charge.

7. (Original) The detonation device according to claim 1 wherein said microprocessor includes digital signal processing logic.

8. (Previously presented) A method for selectively perforating a tubular with a designated explosive charge located downhole in a well bore, comprising the steps of:

attaching the explosive charge to the tubular such that the explosive charge is in direct contact with the tubular;

providing a detonating device having a wireless receiver, microprocessor and control means connected to said wireless receiver, at least one explosive bridge wire, high voltage supply means, and energy storage and trigger means; and

transmitting a coded signal to said wireless receiver to be decoded by the microprocessor and, if the code designates that the respective explosive charge is to be detonated, sends a signal to the trigger means which supplies high

voltage to the explosive bridge wire causing it to substantially instantly vaporize creating sufficient energy to initiate detonation of the respective explosive charge and thereby perforating the tubular.

9. (Original) The method according to claim 8, wherein said coded signal allows selective detonation of a plurality of explosive charges individually.

10. (Original) The method according to claim 8, wherein said coded signal allows selective detonation of a plurality of explosive charges in sequence.

11. (Original) The method according to claim 8, wherein said coded signal allows selective detonation of a plurality of explosive charges in any desired pattern.

12. (Previously presented) The method according to claim 8 wherein the coded signal does not transmit the power to initiate detonation of the explosive charge thereby reducing the risk of accidental detonation of the explosive charge.

13. (Previously presented) The method according to claim 8 wherein said explosive bridge wire comprises:

circuit board having an aperture therein;

an electrical circuit formed on said circuit board with a portion of the electrical circuit overlying said aperture forming a bridge, said bridge having dimensions smaller than the rest of the electrical circuit so that, upon application of power to the electrical circuit, the bridge will flash vaporize causing detonation of the nearby explosive charge.

14. (Previously presented) The method according to claim 8 wherein said microprocessor includes digital signal processing logic.

(ix) Evidence Appendix

Applicant and appellant's legal representative are not aware of any evidence that directly affects or could have a bearing on the Board's decision in the present appeal.

(x) Related Proceedings Appendix

Appellant previously appealed the rejection of claims 1-14. Subsequently, Examiner reopened prosecution. A copy of the Appeal Brief is provided beginning on the following page.

Respectfully submitted,

Edward P. Cernocky and
Allen J. Lindors

By _____
Patent Agent, Rachael A. Stiegel
Registration No. 54.469
(713) 241-1842

P.O. Box 2463
Houston, Texas 77252-2463

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	)	
	)	
Edward P. Cernocky and	)	
Allen J. Lindfors	)	
	)	
Serial No. 09/896,432	)	Group Art Unit: 3641
	)	
Filed June 29, 2001	)	Examiner: H. A. Blackner
	)	
METHOD AND APPARATUS FOR	)	November 19, 2004
DETONATING AN EXPLOSIVE CHARGE	)	
	)	

COMMISSIONER FOR PATENTS
Alexandria, VA 22313-1450

SUBSTITUTE APPELLANT'S BRIEF

The following Substitute Appellant's Brief is on appeal of a final rejection of claims of the above-identified U.S. patent application, the final rejection contained in an Office action mailed on October 8, 2003, and a notice of appeal mailed by applicant on January 8, 2004. This brief is filed in triplicate. This Substitute Appellant's Brief is filed in response to a Notification of Non-Compliance with 37 CFR 1.192(c) mailed on July 13, 2004. The below amended brief addresses the issues raised by the Notification. No charge or fee should be required as a result of filing this Substitute Appellant's Brief, but if a fee is required, please charge to Shell Oil Company Deposit Account No. 19-1800. It is respectfully requested that the

Board consider the following arguments and reverse the final rejection of claims 1-14 in the above-identified application.

REAL PARTY IN INTEREST

The invention of the present application is assigned to Shell Oil Company, which is the real party of interest in the present appeal.

RELATED APPEALS AND INTERFERENCES

Appellant, and appellant's legal representative, are not aware of any appeals or interferences that directly affect or could directly be affected by or have a bearing on the Board's decision in the present appeal.

STATUS OF THE CLAIMS

Claims 1-14 stand as finally rejected under 35 U.S.C. §103(a).

STATUS OF AMENDMENTS

There are no amendments filed herewith or outstanding with respect to this application.

SUMMARY OF CLAIMED SUBJECT MATTER

The present invention relates to a detonation device for selectively perforating a tubular with a designated explosive charge located downhole in a well bore as shown in **FIG 1** and **FIG 5** in the application. The device includes: the tubular **10**; the designated explosive charge attached to the tubular **18**; a wireless receiver **38**; microprocessor and control means **40** connected to said wireless receiver **38**; an explosive bridge wire **42**; high voltage supply means **44**; and energy storage and trigger means **46**, whereby a coded signal received by said wireless receiver **38** is decoded by the micro processor **40** and, if the code designates that the respective explosive charge **18** is to be detonated, sends a

signal to the trigger means which will supply high voltage to explosive bridge wire **42** which will create sufficient energy to initiate detonation of the respective explosive charge **18** and thereby perforating the tubular **10**. In an embodiment of the invention (see **FIG 1**, **FIG 5**, and **FIG 6**), the explosive bridge wire **42** includes: a circuit board **48** having an aperture therein; and an electrical circuit **52** formed on the board **48** with a portion of the circuit overlying the aperture forming a bridge **50**, the bridge **50** having dimensions smaller than the rest of the electrical circuit so that, upon application of power to the circuit, the bridge **50** will flash vaporize causing detonation of the nearby explosive charge **18**.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether claims1-5 and 7 are patentable under 35 U.S.C. §103(a) over Babour in view of Guerreri.
2. Whether claim 6 is patentable under 35 U.S.C. §103(a) over Guerreri in view of Neyer.
3. Whether claims 8-12 and 14 are patentable under 35 U.S.C. §103(a) over Babour in view of Abouav, and further in view of Guerreri.
4. Whether claim 13 is patentable under 35 U.S.C. §103(a) over Babour in view of Abouav, and further in view of Guerreri in further in view of Neyer

ARGUMENTS

1. Rejection of claims 1-5 and 7 lacking in the combination of Babour and Guerreri et al. is improper because all elements are not present in these references, and there is no suggestion to combine.

Claims 1-5 and 7 stand as rejected over Babour et al. (US patent no. 5,467,823) in view of Guerreri et al. (US patent 4,884,506).

To form a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the references or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP § 2142, citing *in re Vaeck,* 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The present rejections state as a motivation to combine the references, in particular, Babour et al. to form a *prima facie* basis for the rejection, "[I]t would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Guerreri's remote detonation device in order to assemble a detonation device that can operate within an environment having high levels of extraneous electricity including stray ground currents, electromagnetic fields, and radio frequency energy."(final rejection, mailed Octoher 8, 2003, page 3) This is not a sufficient suggestion to combine the references because there is no evidence that a wellbore has high levels of extraneous electricity including stray ground currents, electromagnetic fields, and radio frequency energy. In fact, a wellbore is about as well grounded as a piece of metal can be. Further, if there were extraneous electrical signals, one of ordinary skill in the art might tend to favor a hard-wired system such as the wire used to communicate with the shaped charges as suggested by Guerreri. This rational is closer to a teaching away than a suggestion to combine the references.

Even if combined, the element of perforation of the tubular with the designated explosive charge is not taught or suggested in the combined references. Thus a proper prima facie basis for the rejection is not provided. Babour et al. suggests a system for installing sensors in a cemented region around a wellbore, and then perforating the cement around the casing. Babour et al. uses a hard wire connection to control a detonation of shaped charges to perforate the cement without damaging the casing. The goal of Babour et al. is

to provide communication to the monitor from the formation surrounding the wellbore through the cement. In FIG. 5 of Babour et al., a separate uncased wellbore is used to place the sensor in the formation, and then the cement is perforated to provide communication between the sensor and the formation. In neither embodiment is a tubular perforated by the remotely controlled shaped charge. For example, in col 3, lines 9-11, "the pressure gauge 14 remains isolated from the fluid flowing into the string 13 from the producing reservoir R2". Perforated casings are shown in the figures, but the invention of Babour et al. is to place a sensor outside of the casing, and then perforate the cement around the casing to provide communications between the sensor and the formation around the casing.

Guerreri et al. suggests a remote detonation system for detonation of explosive charges selectively. Guerreri et al.'s system is suggested for use in applications where the charge is transported to a hazardous location by a remote controlled tractor, and then detonated (e.g. military applications). It is not suggested that the remote detonation system of Guerreri et al. be used to perforate wellbores or tubulars as in the present system.

2. Basis for rejection of claims 6 is lacking in the combination of Guerreri in view of Neyer because all elements are not present in these references, and there is no suggestion to combine the references.

The arguments above related to the lack of a suggestion to combine Guerreri with the other references of record are also applicable to the present rejection, and are not repeated.

Neyer suggests a shaped bridge slapper having a pair of spaced conductive lands on a substrate; a bridge member between the spaced conductive lands, the bridge member having a curved shape and a cavity herein, and a flyer layer extending over the bridge member. The present invention includes circuit board having an aperture therein; an electrical circuit formed on the board with a

portion of the circuit overlying said aperture forming a bridge, the bridge having dimensions smaller than the rest of the electrical circuit so that, upon application of power to the circuit, the bridge will flash vaporize causing detonation of the nearby explosive charge. The invention of claim 6 detonates a charge by vaporization of the bridge, not the slapper mechanism of Neyer. This element is therefore lacking in the combination of Neyer and Guerreri.

Also lacking in the combination of Guerreri et al. and Neyer is any mention of perforation of a wellbore tubular.

3. Basis for rejection of claims 8-12 and 14 lacking in the combination of Babour in view of Abouav, and further in view of Guerreri because all elements are not present in these references, and there is no suggestion to combine the references.

Claims 8-12 and 14 stand as rejected over Babour et al. with Guerreri et al. and Abouav (US patent no. 5,090,321). Abouav suggests an actuator for use in conjunction with a detonator for blasting that includes, which on receiving input signals generates an output arm signal to arm a detonator, and then after a predetermined delay an output actuate signal to fire the detonator and an associated explosive charge. Arguments discussed above addressing the rejection of claims 1-5 and 7 are equally applicable to this rejection because Abouav does not add to Babour et al. and Buerreri the elements missing from the rejection of the claims. Nor does Abouav supply a suggestion to combine Guerreri and Babour.

4. Basis for rejection of claims 13 is lacking in the combination of Babour in view of Abouav, and further in view of Guerreri in further in view of Neyer because all elements are not present in these references, and there is no suggestion to combine the references.

The four references of this rejection do not contain elements of vaporization of the bridge as required by claim 13 (as discussed above with regard to rejection of claim 6), nor the perforation of the tubular with the designated explosive charge (as discussed with regard to rejection of claims 1-5 and 7 above). Further, as discussed above with regard to rejection of claims 1-5 and 7, there is no suggestion to combine Babour and Guerreri.

CONCLUSION

For the reasons set forth above, the applicants assert that the rejections made by the Examiner are improper. Applicants therefore request that the Board reverse the Examiner's rejections, and allowance of the claims is respectfully requested.

Respectfully submitted,

Edward P. Cernocky and
Allen J. Lindors

By _____
Patent Agent, Rachael A. Stiegel
Registration No. 54.469
(713) 241-1842

P.O. Box 2463
Houston, Texas 77252-2463

CLAIMS APPENDIX

Claims under Appeal

US 09/896,432

1. A detonation device for selectively perforating a tubular with a designated explosive charge located downhole in a well bore, said device comprising:

the tubular;

the designated explosive charge attached to the tubular;

a wireless receiver;

microprocessor and control means connected to said wireless receiver;

an explosive bridge wire;

high voltage supply means; and energy storage and trigger means, whereby a coded signal received by said wireless receiver is decoded by the micro processor and, if the code designates that the respective explosive charge is to be detonated, sends a signal to the trigger means which will supply high voltage to explosive bridge wire which will create sufficient energy to initiate detonation of the respective explosive charge and thereby perforating the tubular.

2. The detonation device according to claim 1, wherein said coded signal allows selective detonation of a plurality of explosive charges individually.

3. The detonation device according to claim 1, wherein said coded signal allows selective detonation of a plurality of explosive charges in sequence.

4. The detonation device according to claim 1, wherein said coded signal allows selective detonation of a plurality of explosive charges in any desired pattern.

5. The detonation device according to claim 1 wherein the wireless signal does not transmit the power to initiate detonation of the explosive charge thereby reducing the risk of accidental detonation of the explosive charge.

6. The detonation device according to claim 1 wherein said explosive bridge wire comprises:

circuit board having an aperture therein;

an electrical circuit formed on said board with a portion of the circuit overlying said aperture forming a bridge, said bridge having dimensions smaller than the rest of the electrical circuit so that, upon application of power to the circuit, the bridge will flash vaporize causing detonation of the nearby explosive charge.

7. The detonation device according to claim 1 wherein said microprocessor includes digital signal processing logic.

8. A method for selectively perforating a tubular with a designated explosive charge located downhole in a well bore, comprising the steps of:

attaching the explosive charge to the tubular;

providing a detonating device having a wireless receiver, microprocessor and control means connected to said wireless receiver, at least one explosive bridge wire, high voltage supply means, and energy storage and trigger means; and

transmitting a coded signal to said wireless receiver to be decoded by the microprocessor and, if the code designates that the respective explosive charge is to be detonated, sends a signal to the trigger means which supplies high voltage to the explosive bridge wire causing it to substantially instantly vaporize creating sufficient energy to initiate detonation of the respective explosive charge and thereby perforating the tubular.

9. The method according to claim 8, wherein said coded signal allows selective detonation of a plurality of explosive charges individually.

10. The method according to claim 8, wherein said coded signal allows selective detonation of a plurality of explosive charges in sequence.

11. The method according to claim 8, wherein said coded signal allows selective detonation of a plurality of explosive charges in any desired pattern.

12. The method according to claim 8 wherein the coded signal does not transmit the power to initiate detonation of the explosive charge thereby reducing the risk of accidental detonation of the explosive charge.

13. The method according to claim 8 wherein said explosive bridge wire comprises:

circuit board having an aperture therein;

an electrical circuit formed on said circuit board with a portion of the electrical circuit overlying said aperture forming a bridge, said bridge having dimensions smaller than the rest of the electrical circuit so that, upon application of power to the electrical circuit, the bridge will flash vaporize causing detonation of the nearby explosive charge.

14. The method according to claim 8 wherein said microprocessor includes digital signal processing logic.

OIPE IAP12 OCT 06 2006 PATENT & TRADEMARK OFFICE

Patent
TH-2094 (US)
RST:SWT

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Commissioner for Patents, Alexandria, VA . 2231-1450 on or before the date shown below.

Rachael Stiegel
Date: 27 Feb. 2006

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Edward P. Cernocky and
Allen J. Lindfors

Serial No. 09/896,432

Filed June 29, 2001

METHOD AND APPARATUS FOR DETONATING AN EXPLOSIVE CHARGE

Group Art Unit: 3641

Examiner: Daniel L. Greene

February 27, 2006

COMMISSIONER FOR PATENTS
Alexandria, VA 22313-1450

Sir:

REPLY BRIEF UNDER 37 CFRR §41.41

The following Reply Brief is on appeal of a final rejection of claims of the above-identified U.S. patent application, the final rejection contained in an Office Action mailed on 10 August 2005, and an Appeal Brief filed by Applicant on 11 October 2005. This is a reply brief to Examiner's Answer mailed 27 December 2005. It is respectfully requested that the Board consider the following arguments and reverse the final rejection of claims 1-14 in the above-identified application.

(i) Real Party in Interest

The invention of the present application is assigned to Shell Oil Company, which is the real party of interest in the present appeal.

(ii) Related Appeals and Interferences

Appellant, and appellant's legal representative, are not aware of any appeals or interferences that directly affect or could directly be affected by or have a bearing on the Board's decision in the present appeal.

(iii) Status of Claims

Claims 1-14 stand as finally rejected under 35 U.S.C. §103.

(iv) Status of Amendments

No amendments have been made after the issuance of the Office Action on 10 August 2005.

(v) Summary of Claimed Subject Matter

The present invention relates to a detonation device for selectively perforating a tubular with a designated explosive charge located downhole in a well bore as shown in **FIG 1** and **FIG 5** in the application. The device includes: the tubular **10**; the designated explosive charge attached to the tubular **18**; a wireless receiver **38**; microprocessor and control means **40** connected to said wireless receiver **38**; an explosive bridge wire **42**; high voltage supply means **44**; and energy storage and trigger means **46**, whereby a coded signal received by said wireless receiver **38** is decoded by the micro processor **40** and, if the code designates that the respective explosive charge **18** is to be detonated, sends a signal to the trigger means which will supply high voltage to explosive bridge wire **42** which will create sufficient energy to initiate detonation of the respective explosive charge **18** and thereby perforating the tubular **10**. In an embodiment of the invention (see **FIG 1**, **FIG 5**, and **FIG 6**), the explosive bridge wire **42**

includes: a circuit board **48** having an aperture therein; and an electrical circuit **52** formed on the board **48** with a portion of the circuit overlying the aperture forming a bridge **50**, the bridge **50** having dimensions smaller than the rest of the electrical circuit so that, upon application of power to the circuit, the bridge **50** will flash vaporize causing detonation of the nearby explosive charge **18**.

(vi) Grounds of Rejection to be Reviewed on Appeal

1. Whether claims 1-5 and 7 are unpatentable over Snider in view of Guerreri.
2. Whether claim 6 is unpatentable over Snider in view of Guerreri and further in view of Neyer.
3. Whether claims 8-12 and 11-14 are unpatentable over Snider in view of Abouav and further in view of Guerreri or in the alternative further in view of US Patent 5,295,544 to Umphries.
4. Whether claim 13 is unpatentable over Snider in view of Abouav, further in view of Guerreri as applied to claim 8 above, and further in view of Neyer or in the alternative further in view of US Patent 5,295,544 to Umphries and further in view of Neyer.

(vii) Arguments

1. Rejection of claims 1-5 and 7 as unpatentable under 35 U.S.C. §103 is improper because there is no suggestion to combine the references and the references do not disclose all of the elements in the claims.

Examiner has failed to provide a prima facie basis for rejection because there is no suggestion to combine the references cited. Examiner asserts that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Guerreri's apparatus in order to achieve the benefits of a wireless system as well (i.e. no cost for wires, no management of wires, portability, etc.) as the desired effect of producing a blasting system, which is comprised of a plurality of detonator assemblies that are individually detonated

by a wireless remote command source." Examiner further states that Guerreri and Snider are analogous art because they both deal with detonation of explosives. Applellant respectfully disagrees.

On page 16 in the Examiner's Answer, Examiner states that "Appellant has failed to provide any reasoning whatsoever as to why there is no suggestion to combine other than saying it isn't so." Appellant respectfully disagrees. Appellant's arguments presented in the Appeal Brief filed on 11 October 2005 are reproduced below along with additional arguments in support of the assertion that Snider and Abouhav *are not* analogous art.

Analogous art, according to the CCPA and the Federal Circuit, is all art that is either in the field of technology of the claimed invention or deals with the same problem solved by the claimed invention. In *In re Wood*, the court held:

> The determination that a reference is from a non-analogous art is therefore twofold. First we decide if the reference is within the field of the inventor's endeavor. If not, we proceed to determine whether the reference is reasonably pertinent to the particular problem with which the inventor was involved.

In re Wood, 599 F.2d 1032, 202 USPQ 171 (CCPA 1979).

In re Clay represents an example of two inventions in the petroleum industry held to be non-analogous art. Here the court held that the claimed invention, which related to a method for *storing refined* petroleum products in a *man-made* storage tank, was not analogous art to a reference directed to a method for extracting *crude oil* from a *porous* hydro-carbon-bearing *natural underground* formation. *In re Clay*, 966 F.2d 656, 23 USPQ2d 1058 (Fed. Cir. 1992). These italicized features, the court said, show a different "field of endeavor" and different "purposes," which defeat the possibility of dealing with or solving a common problem.

Because from the facts derived from the references, as set forth below, the reference is non-analogous art; therefore, the rejection is unsupported by the art and should be withdrawn.

1. Snider and Guerri are not in the same field of endeavor.

a. Snider relates to "a process or apparatus for establishing communication through the wall of a wellbore tubular. (see column 1, lines 6-8).
b. Guerreri relates to "detonation of explosive charges using electrical detonators in environments *having high levels of extraneous electricity*. (see column 1, lines 9-13). More specifically, Guerreri relates to the detonation of explosives in hostage-taking situations in urban or highly concentrated areas (see column 1, lines 15-61).
c. A wellbore tubular does not have high levels of extraneous electricity especially in comparison to the highly populated urban area described by Guerreri.

2. Guerri is not reasonably pertinent to the particular problem with which the inventor was involved.

Thus, Snider and Guerreri are neither in the same field of technology nor do they solve the same problem. One skilled in the art of establishing communication through the wall of a wellbore tubular would not look to combine elements of Snider with elements of Guerreri, a technology in the field of detonation in environments having high levels of extraneous electricity.

2. Rejection of claim 6 as unpatentable under 35 U.S.C. §103 is improper because there is no suggestion to combine the references.

For the reasons presented in section 1 of this Appeal Brief, Snider and Guerreri are not analogous art; therefore, there is no suggestion to combine Snider, Guerri, and Neyer, and a prima facie showing of obviousness is not established. This rejection is therefore improper.

3. Rejection of claims 8-12 and 11-14 as unpatentable under 35 U.S.C. §103 is improper because there is no suggestion to combine the references and the references do not disclose all of the elements in the claims.

For the reasons presented in section 1 of this Appeal Brief, Snider and Guerreri are not analogous art; therefore, there is no suggestion to combine Snider, Guerri, and Abouav, and a prima facie showing of obviousness is not established. This rejection is therefore improper. Even if there were a suggestion to combine the references, Examiner also fails to present a prima facie showing of obviousness because not all of the limitations of claim 8 are disclosed. Agent has amended claim to include the limitation of attaching the explosive charge to the tubular such that the explosive charge is in direct contact with the tubular. This limitation is supported by the specification and is not suggested by the cited references.

4. Rejection of claim 13 as unpatentable under 35 U.S.C. §103 is improper because there is no suggestion to combine the references.

For the reasons presented in section 1 of this Appeal Brief, Snider and Guerreri are not analogous art; therefore, there is no suggestion to combine Snider, Guerri, Abouav, and Neyer, and a prima facie showing of obviousness is not established. This rejection is therefore improper.

For the reasons set forth above, the applicants assert that the rejections made by the Examiner are improper. Applicants therefore request that the Board reverse the Examiner's rejections, and allowance of the claims is respectfully requested.

(viii) Claims Appendix

Claims under Appeal

US 09/896,432

1. (Previously presented) A detonation device for selectively perforating a tubular with a designated explosive charge located downhole in a well bore, said device comprising:

the tubular;

the designated explosive charge attached to the tubular;

a wireless receiver;

microprocessor and control means connected to said wireless receiver;

an explosive bridge wire;

high voltage supply means; and energy storage and trigger means, whereby a coded signal received by said wireless receiver is decoded by the micro processor and, if the code designates that the respective explosive charge is to be detonated, sends a signal to the trigger means which will supply high voltage to explosive bridge wire which will create sufficient energy to initiate detonation of the respective explosive charge and thereby perforating the tubular.

2. (Original) The detonation device according to claim 1, wherein said coded signal allows selective detonation of a plurality of explosive charges individually.

3. (Original) The detonation device according to claim 1, wherein said coded signal allows selective detonation of a plurality of explosive charges in sequence.

4. (Original) The detonation device according to claim 1, wherein said coded signal allows selective detonation of a plurality of explosive charges in any desired pattern.

5. (Previously presented) The detonation device according to claim 1 wherein the wireless signal does not transmit the power to initiate detonation of

the explosive charge thereby reducing the risk of accidental detonation of the explosive charge.

6. (Previously presented) The detonation device according to claim 1 wherein said explosive bridge wire comprises:

circuit board having an aperture therein;

an electrical circuit formed on said board with a portion of the circuit overlying said aperture forming a bridge, said bridge having dimensions smaller than the rest of the electrical circuit so that, upon application of power to the circuit, the bridge will flash vaporize causing detonation of the nearby explosive charge.

7. (Original) The detonation device according to claim 1 wherein said microprocessor includes digital signal processing logic.

8. (Previously presented) A method for selectively perforating a tubular with a designated explosive charge located downhole in a well bore, comprising the steps of:

attaching the explosive charge to the tubular such that the explosive charge is in direct contact with the tubular;

providing a detonating device having a wireless receiver, microprocessor and control means connected to said wireless receiver, at least one explosive bridge wire, high voltage supply means, and energy storage and trigger means; and

transmitting a coded signal to said wireless receiver to be decoded by the microprocessor and, if the code designates that the respective explosive charge is to be detonated, sends a signal to the trigger means which supplies high voltage to the explosive bridge wire causing it to substantially instantly vaporize creating sufficient energy to initiate detonation of the respective explosive charge and thereby perforating the tubular.

9. (Original) The method according to claim 8, wherein said coded signal allows selective detonation of a plurality of explosive charges individually.

10. (Original) The method according to claim 8, wherein said coded signal allows selective detonation of a plurality of explosive charges in sequence.

11. (Original) The method according to claim 8, wherein said coded signal allows selective detonation of a plurality of explosive charges in any desired pattern.

12. (Previously presented) The method according to claim 8 wherein the coded signal does not transmit the power to initiate detonation of the explosive charge thereby reducing the risk of accidental detonation of the explosive charge.

13. (Previously presented) The method according to claim 8 wherein said explosive bridge wire comprises:

circuit board having an aperture therein;

an electrical circuit formed on said circuit board with a portion of the electrical circuit overlying said aperture forming a bridge, said bridge having dimensions smaller than the rest of the electrical circuit so that, upon application of power to the electrical circuit, the bridge will flash vaporize causing detonation of the nearby explosive charge.

14. (Previously presented) The method according to claim 8 wherein said microprocessor includes digital signal processing logic.

(ix) Evidence Appendix

Applicant and appellant's legal representative are not aware of any evidence that directly affects or could have a bearing on the Board's decision in the present appeal.

(x) Related Proceedings Appendix

Appellant previously appealed the rejection of claims 1-14. Subsequently, Examiner reopened prosecution. A copy of the Appeal Brief is provided beginning on the following page.

Respectfully submitted,

Edward P. Cernocky and
Allen J. Lindfors

By _____
Agent, Rachael Stiegel
Registration No. 54,469
(713) 241-1842

P. O. Box 2463
Houston, Texas 77252-2463

OIPE IAP12
OCT 06 2006
PATENT & TRADEMARK OFFICE

10/11/05

SERIAL NO: 09/896,432 CASE NO.: TH-2094(US)

FILING DATE: June 29, 2001 DUE DATE:

The stamp of the U.S. Patent Office hereupon, may be taken as acknowledging receipt in the above-identified application of the following:

Notice of Appeal from the Primary Examiner to the Board of Appeals

By RST/SWT

W/C.O.M.

10/11/05

SERIAL NO: 09/896,432 CASE NO.: TH-2094(US)

FILING DATE: June 29, 2001 DUE DATE:

OIPE IAP63
OCT 13 2005
PATENT & TRADEMARK OFFICE

The stamp of the U.S. Patent Office hereupon, may be taken as acknowledging receipt in the above-identified application of the following:

Notice of Appeal from the Primary Examiner to the Board of Appeals

By RST/SWT

W/C.O.M.

4-27-05

Patent
TH-2094 (US)
RST:SWT

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Commissioner for Patents, Alexandria, VA. 2231-1450 on or before the date shown below.

Rachael Stiegel
Date: 10-11-2005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	
Edward P. Cernocky and Allen J. Lindfors	
Serial No. 09/896,432	Group Art Unit: 3641
Filed June 29, 2001	Examiner: Daniel Greene
METHOD AND APPARATUS FOR DETONATING AN EXPLOSIVE CHARGE	October 10, 2005

COMMISSIONER FOR PATENTS
Alexandria, VA 22313-1450

Sir:

NOTICE OF APPEAL FROM THE PRIMARY EXAMINER TO THE BOARD OF APPEALS

Applicant hereby appeals to the Board of Appeals from the decision dated January 28, 2005 of the Primary Examiner finally rejecting Claims 1-14. The rejection of each of these claims is herewith appealed.

Please charge the fee of $500.00 to Deposit Account No. 19-1800, Shell Oil Company. A duplicate copy of this paper is enclosed.

Respectfully submitted,
Edward P. Cernocky and Allen J. Lindfors

By _____
Agent, Rachael Stiegel
Registration No. 54,469
(713) 241-1842

P. O. Box 2463
Houston, Texas 77252-2463